

## **REMARKS**

### **Claim Objections**

The examiner has objected to claims 16-22 under 37 C.F.R. § 1.75 (c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicants have cancelled claims 18-22 without prejudice.

Applicants have amended claims 16-17 to place the claims in proper dependent form.

In view of the foregoing, Applicants respectfully request the Examiner to withdraw the objections to claims 16-17 under 37 C.F.R. § 1.75 (c).

### **Claim Rejections 35 U.S.C. § 112, second paragraph**

The Examiner has rejected claims 14-23 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants have cancelled claims 18-23 without prejudice.

Applicants have amended claims 14-17 to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

In view of the foregoing, Applicants respectfully request the Examiner to withdraw the rejections to claims 14-17 under 35 U.S.C. § 112, second paragraph.

**Claim Rejections 35 U.S.C. § 103 (a)**

**Claims 14-23**

The Examiner has rejected claims 14-23 under 35 U.S.C. § 103 (a) as being unpatentable over Strauss et al. (U.S. 5,932,075) in view of Collins et al. (RE 34373).

Applicants respectfully disagree with the Examiner. Applicants have cancelled claims 18-23 without prejudice. Applicants have amended claims 14-17. Support is provided by the specification, including in paragraphs [0026]-[0034].

Claim 14, as amended, claims an apparatus including: a power supply, the power supply being continuous-wave; a magnetron (190) located proximate the power supply, the magnetron capable of generating microwave energy (180) and capable of sweeping frequency of the microwave energy very rapidly to prevent standing waves and to eliminate arcing damage due to build-up of charges; a waveguide (195) located proximate the magnetron, the waveguide coupled to an input aperture, the waveguide capable of transmitting the microwave energy; a stirrer (210) located proximate the waveguide, the stirrer capable of linear and rotational motion, the stirrer formed of a material that reflects the microwave energy, the stirrer capable of mixing the microwave energy; a susceptor (200) located proximate the stirrer, the susceptor capable of linear motion and rotational motion, the susceptor formed of a material that does not absorb the microwave energy, the susceptor capable of holding a self-aligned mechanical joint (225) and exposing the self-aligned mechanical joint to the microwave energy; a conveyor belt located proximate the susceptor, the conveyor belt capable of holding the susceptor in an inert atmosphere for a dwell time of 15.0-30.0 seconds at a peak temperature of about 221.0-240.0 degrees Centigrade; and walls located around the conveyor belt,

the walls being electrically conductive, the walls having emissivity with a value of 0.8 . See Figure 2 (a).

The 2 cited references fail to teach continuous-wave power supply, stirrer that reflects microwave energy, susceptor that does not absorb microwave energy, conveyor belt that holds the susceptor in an inert atmosphere, and electrically conductive walls around the conveyor belt.

Despite the assertion of the Examiner, the rotatable turntable (12) taught by Collins et al. (see Figure 1) is completely different from the conveyor belt claimed by Applicants in claim 14, as amended.

Collins et al. teaches radiation absorbing material (see Col. 4, lines 25-27) which is opposite of Applicants' invention as claimed in claim 14, as amended.

Consequently, the 2 references cited by the Examiner, whether individually or collectively, fail to render Applicants' invention, as claimed in claim 14, as amended, obvious to one of ordinary skill in the art of making semiconductors.

Claims 15-17 are dependent on claim 14, as amended, and, thus, are also not rendered obvious by the 2 references cited by the Examiner.

In view of the foregoing, Applicants respectfully request the Examiner to withdraw the rejections to claims 14-17 under 35 U.S.C. § 103 (a).

#### **Claims 14-23**

The Examiner has rejected claims 14-23 under 35 U.S.C. § 103 (a) as being unpatentable over Strauss et al. (U.S. 5,932,075) in view of Kilgore et al. (U.S. 6,497,786 B1).

Applicants respectfully disagree with the Examiner. Applicants have cancelled claims 18-23 without prejudice. Applicants have amended claims 14-17. Support is provided by the specification, including in paragraphs [0026]-[0034].

Claim 14, as amended, claims an apparatus including: a power supply, the power supply being continuous-wave; a magnetron (190) located proximate the power supply, the magnetron capable of generating microwave energy (180) and capable of sweeping frequency of the microwave energy very rapidly to prevent standing waves and to eliminate arcing damage due to build-up of charges; a waveguide (195) located proximate the magnetron, the waveguide coupled to an input aperture, the waveguide capable of transmitting the microwave energy; a stirrer (210) located proximate the waveguide, the stirrer capable of linear and rotational motion, the stirrer formed of a material that reflects the microwave energy, the stirrer capable of mixing the microwave energy; a susceptor (200) located proximate the stirrer, the susceptor capable of linear motion and rotational motion, the susceptor formed of a material that does not absorb the microwave energy, the susceptor capable of holding a self-aligned mechanical joint (225) and exposing the self-aligned mechanical joint to the microwave energy; a conveyor belt located proximate the susceptor, the conveyor belt capable of holding the susceptor in an inert atmosphere for a dwell time of 15.0-30.0 seconds at a peak temperature of about 221.0-240.0 degrees Centigrade; and walls located around the conveyor belt, the walls being electrically conductive, the walls having emissivity with a value of 0.8 . See Figure 2 (a).

The 2 cited references fail to teach continuous-wave power supply, stirrer that reflects microwave energy, susceptor that does not absorb microwave energy, and electrically conductive walls around the conveyor belt.

Consequently, the 2 references cited by the Examiner, whether individually or collectively, fail to render Applicants' invention, as claimed in claim 14, as amended, obvious to one of ordinary skill in the art of making semiconductors.

Claims 15-17 are dependent on claim 14, as amended, and, thus, are also not rendered obvious by the 2 references cited by the Examiner.

In view of the foregoing, Applicants respectfully request the Examiner to withdraw the rejections to claims 14-17 under 35 U.S.C. § 103 (a).

### Claims 14-23

The Examiner has rejected claims 14-23 under 35 U.S.C. § 103 (a) as being unpatentable over Bible et al. (U.S. 5,961,871) in view of Kilgore et al. (U.S. 6,497,786 B1).

Applicants respectfully disagree with the Examiner. Applicants have cancelled claims 18-23 without prejudice. Applicants have amended claims 14-17. Support is provided by the specification, including in paragraphs [0026]-[0034].

Claim 14, as amended, claims an apparatus including: a power supply, the power supply being continuous-wave; a magnetron (190) located proximate the power supply, the magnetron capable of generating microwave energy (180) and capable of sweeping frequency of the microwave energy very rapidly to prevent standing waves and to eliminate arcing damage due to build-up of charges; a waveguide (195) located proximate the magnetron, the waveguide coupled to an input aperture, the waveguide capable of transmitting the microwave energy; a stirrer (210) located proximate the waveguide, the stirrer capable of linear and rotational motion, the stirrer formed of a material that reflects the microwave energy, the stirrer capable of mixing the microwave energy; a susceptor (200) located proximate the stirrer, the susceptor capable of linear motion and rotational motion, the susceptor formed of a material that does not absorb the microwave energy, the susceptor capable of holding a self-aligned mechanical joint (225) and exposing the self-aligned mechanical joint to the microwave energy; a conveyor belt located proximate the susceptor, the conveyor belt capable of holding the susceptor in an inert atmosphere for a dwell time of 15.0-30.0 seconds at a peak temperature of about 221.0-240.0 degrees Centigrade; and walls located around the conveyor belt,

the walls being electrically conductive, the walls having emissivity with a value of 0.8 . See Figure 2 (a).

The 2 cited references fail to teach continuous-wave power supply, stirrer that reflects microwave energy, susceptor that does not absorb microwave energy, and electrically conductive walls around the conveyor belt.

Consequently, the 2 references cited by the Examiner, whether individually or collectively, fail to render Applicants' invention, as claimed in claim 14, as amended, obvious to one of ordinary skill in the art of making semiconductors.

Claims 15-17 are dependent on claim 14, as amended, and, thus, are also not rendered obvious by the 2 references cited by the Examiner.

In view of the foregoing, Applicants respectfully request the Examiner to withdraw the rejections to claims 14-17 under 35 U.S.C. § 103 (a).

#### **Conclusion**

Applicants believe that all claims pending, including amended claims 14-17, are now in condition for allowance so such action is earnestly solicited at the earliest possible date.